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Remarks

1. Specification

(numbered paragraphs 3 and 4 of the Office Action)

The required corrections to overcome the objections to the specification have been made. The specification changes are listed at the beginning before claim amendments.

2. Claim rejections under 35 U.S.C. § 112 (2)

(numbered paragraph 7 of the Office Action)

To overcome the rejection of claim 47 as being indefinite, the wording "the bus datastream" in claim 47 was changed to "a bus datastream" and the wording "the datastream on the bus" was changed to "a datastream on a bus".

3. Claim objections

(numbered paragraph 8 of the Office Action)

The unchanged wording of claim 32 sets forth the following enumeration:

"at least one safety analyzer which

- is connected to the bus separately by means of an appropriate interface,
- monitors the data flow via the bus system and
- is designed to carry out at least one safety-related function,"

The Examiner's suggestion to change the wording of claim 32 was not adopted,

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since it appears to change the meaning of the claim.

The dependency in claim 57 referring to the cancelled claim 56 has been changed so that claim 57 now depends on claim 47.

4. Claim rejections under 35 U.S.C. § 102

Claims 32 to 34, 36, 37, 39, 42 to 55, 57 and 60 to 66 are rejected as being anticipated by Kramer et al. (Kramer) (USP 6,466,539).

Valid rejection under 35 USC 102 requires that each feature of a rejected claim be disclosed in a single reference. "For anticipation under 35 USC 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present." MPEP 706.02(a)

For the purpose of further clarification, we adopt the feature that "the safety analyzer is not a logic bus subscriber in the automation system" from claim 35 into claim 32 and accordingly delete this feature in claim 35.

Accordingly, Kramer does not disclose each feature of the rejected claims.

Kramer describes a serial bus system with two data lines, connected at one end to a bus master and to a terminating bus module at the other end. The data lines physically pass through bus subscribers which are arranged in between the bus master and the terminating bus module. The bus master and the terminating bus module transmit status messages over the bus. In case of missing status messages or detected errors in the status messages the bus master brings the bus system into a fail-safe state.

For redundancy purposes the bus subscribers which are arranged in between the bus master and the terminating bus module can be provided with two intelligent bus

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controller modules, which are monitoring each other.

Since the central idea of Kramer lies in the exchange of status messages between the bus master and the terminating bus module, both modules are needed for the system to work.

Contrary to that, it follows from the feature "at least one safety analyzer" of claim 32 that in the present application only one safety analyzer is needed.

Furthermore, the feature that the safety analyzer has a device for manipulating the datastream transmitted on the bus is not disclosed by Kramer.

In this respect, the meaning of "manipulating the datastream" can be taken from the description, for instance on pages 9 and 10, paragraphs [0024] and [0025]. Thus, "manipulating the datastream" is performed independent of the bus data transfer protocol utilized for communication between logic bus subscribers. Data items which are put into the bus datastream by a bus subscriber according to the bus data transfer protocol are "manipulated" by the device for manipulating the datastream by means of overwriting, deleting and/or inserting data items.

Kramer gives no hint to manipulating the datastream transmitted on the bus in the way construed above.

Furthermore, Kramer also does not disclose a safety analyzer that is connected to the bus **separately** by means of an appropriate interface. To further clarify this point, the feature that the safety analyzer is **not a logic bus subscriber** was adopted into claim 32. Different from that, all modules described by Kramer are logic bus subscribers.

Claim 32 therefore is new and inventive in view of Kramer. Accordingly, claims 33 to 46, which depend on claim 32, are new and inventive in view of Kramer.

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For clarification purposes we adopt the feature that "the safety analyzer is not a logic bus subscriber in the automation system" also into claim 47.

The arguments put forward above with respect to claim 32 also apply to claim 47. Accordingly, Kramer does not give any hint to carrying out processing of safety-related data in a safety analyzer, which is not a logic bus subscriber. Furthermore, manipulating the bus datastream by overwriting, deleting and/or inserting data items by means of a device for manipulating a datastream on a bus with the step of "manipulating the datastream" construed as described above is not disclosed by Kramer.

Claim 47 therefore is new and inventive in view of Kramer. Accordingly, also claims 48 to 66, which depend on claim 47, are new and inventive in view of Kramer.

Therefore, it is respectfully submitted, that subject matter of amended claims 32 and 47 and of the respective dependent claims are not anticipated by Kramer.

5. Claim rejections under 35 U.S.C. § 103 (a)

Claims 58-59 stand rejected as being unpatentable over Kramer in view of Fulton et al.

Claims 38 and 40-41 stand rejected as being unpatentable over Kramer in view of Roth.

Claim 35 stands rejected as being unpatentable over Kramer in view of Price.

MPEP 2142 sets forth "The Legal Concept of *Prima Facie* Obviousness."

To establish a *prima facie* case of obviousness under 35 USC 103(a) the initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed

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to obvious subject matter, either the references must expressly or imply suggest the claimed invention or the Examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.” (MPEP 706.02(j))

The cited references do not motivate or suggest to a skilled artisen to combine these refereces to produce applicant’s invention as claimed.

Fulton describes a control system including a network of distributed programmable controllers and especially a method and a system for peer-to-peer interlocking in high speed transmission of relatively small amounts of data among the controllers. Further, the use of CRC checksums for data validation is described by Fulton.

Safety-relevant aspects of an automation bus system are not mentioned in Fulton. Further, there is no information given with regard to manipulating data transmitted on a bus or to carrying out processing of safety-related data transmitted on a bus in a safety analyzer, that is not a logic bus subscriber.

Roth concerns a process for processing safety-relevant data in a safety system with several nodes connected in a bus ring, wherein in parallel in each node the data received by it and are processed and retransmitted to the next node. For diagnosis purposes a diagnostic unit is provided that passively receives the data present in at least one node.

However, the diagnostic unit described in Roth is not suited to manipulate bus data (col. 2, lines 22 to 24) and is therefore also not suited to influence the data transmitted on the bus by overwriting, deleting or inserting data items.

Price describes a control system to control a plant, comprising a monitoring

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system for monitoring a microprocessor based control device, the monitoring system being provided with means to initiate shutdown of the plant.

However, Price does not mention the utilization of a bus system. A person skilled in the art at the time the invention was made therefore would not have referred to this document to reach the subject matter of the independent claims of the present application. Furthermore, the monitoring system is not provided with means to manipulate data items but only with means to control a set of relays to interrupt signal lines.

Therefore, combining the teaching of either Fulton, Roth or Price with the teaching of Kramer would not have led a person skilled in the art at the time the invention was made to the subject matter of the independent claims.

6. Further prior art made of record

The Examiner further cites Dittmar (USP 5,784,547) and Pattantyus-Abraham (US 6,325,198).

Dittmar describes a method for fault-tolerant communication in a local network, which uses a double bus system. Different from that, in the present invention only one bus system is needed.

Pattantyus-Abraham describes a high speed manufacturing system, which is provided with a hard-wired safety circuit by means of which a shutdown can be performed. No hint is given, however, to manipulating data items of a bus datastream.

Therefore, combining the teaching of either Dittmar or Pattantyus-Abraham with the teaching of any of the other cited documents would not have led a person skilled in the art to the subject matter of the independent claims 32 and 47.

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7. Conclusion

The subject matter of amended claims 32 to 66 is not anticipated by any of the cited documents and was not obvious to a person skilled in the art at the time the invention was made in view of any combination of the cited documents.

A one-month extension of time in which to respond to the outstanding Office Action is hereby requested. Credit Card Payment Form PTO-2038 is enclosed to cover the prescribed Large Entity one-month extension fee of \$110.00.

We are filing a request for continued examination (RCE) at this point to rapidly reach a patent grant.

Respectfully submitted,



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I hereby certify this correspondence is being submitted to Commissioner for Patents, Washington, D.C. 20231 by facsimile transmission on August 27, 2004, fax number (703) 746-7239.



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